

**The Implications of Regional and Provider-specific Variations in Medicare  
Spending for Medicare Payment Reform**

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# **The Implications of Regional and Provider-specific Variations in Medicare Spending for Medicare Payment Reform**

## **Summary of Major Points**

The Medicare Payment Advisory Commission Report *Assessing Alternatives to the Sustainable Growth Rates System* provides an outstanding analysis of the key issues and challenges confronting Congress as it considers how to reform current Medicare approaches to provider payment during a period of serious budget constraints.

Nearly two-fold differences in Medicare spending exist across U.S. regions and across the populations cared for by major academic medical centers. These cannot be explained on the basis of differences in patients' needs for care or to differences in prices. Rather they are due largely to differences in the volume -- or overall intensity of care -- and are largely explained by greater use of what we call "supply-sensitive services" -- discretionary services such as the frequency of physician visits, use of specialists as opposed to primary care physicians, the use of the acute care hospital as a site of care, and the frequency of diagnostic tests and imaging.

Higher spending regions, academic medical centers and hospitals do not provide better care. On the contrary, the evidence suggests that higher spending is associated with lower quality; and U.S. regions that grew fastest fell somewhat further behind in their quality and outcomes.

This research highlights the magnitude of the opportunity to improve the value of Medicare services and provides further support for several key payment reform principles that are embedded in the Commission's Pathway Two: ensuring that incentives to control spending growth apply to all providers, whether through expenditure targets or other means and striving to reduce regional disparities in spending by applying greater pressure on currently high-spending regions.

Our research also provides strong support for the importance of fostering the development of Accountable Care Organizations -- local integrated delivery systems that (1) are large enough to support comprehensive performance measurement, (2) can provide or effectively manage the full continuum of patient care; (3) could participate in shared-savings approaches to payment reform as an interim step toward fundamental payment reform.

Accountable Care Organizations should be a key element of payment reform for the following reasons: (1) Most physicians already practice within “virtual” multi-specialty group practices; modest incentives might prompt physicians to establish formal organizations that would neither disrupt their current practice patterns or their patients’ care; (2) ACOs could be given incentives to control total Medicare payments, allowing budgetary savings with smaller relative impact on provider revenues; (3) Performance measurement at the level of an ACO would be much more tractable in the near term. (4) ACOs are more likely to have the capacity to invest in the infrastructure required to improve care, such as electronic health records and care management protocols.

We have shown that growth in spending on physician services varies dramatically across empirically defined “virtual” multi-specialty group practices, ranging from a low of 2.4% per year in the slowest growing fifth to almost 10% per year in the highest growing groups. We can therefore identify the ACOs who are most responsible for the growth in spending -- and those that offer a path toward improved value for Medicare.

Thank you Mr. Chairman, Congressman Deal, and distinguished members of the Committee for your invitation to address you today.

There is broad agreement on the scope of the challenges facing the U.S. health care system. The quality of care is remarkably uneven. Costs are rising at rates that threaten the affordability of care. And there is broad agreement that our current approach to paying for medical care is part of the problem.

The recently released Medicare Payment Advisory Commission report *Assessing Alternatives to the Sustainable Growth Rates System* provides an outstanding analysis of the key issues and challenges confronting Congress as it considers how to reform current Medicare approaches to provider payment during a period of serious budget constraints. The report also outlines a broad array of policy approaches that Congress and CMS could pursue to improve the quality and costs of care for Medicare beneficiaries. I find that I agree with almost all of their recommendations.

In particular I endorse their central recommendation: Congress should make a substantial investment in Medicare's capability to develop, implement, and refine payment systems that will reward higher quality care and efficient use of resources. I am also in general agreement with their analysis of the underlying causes of poor quality and rising costs and their general prescriptions: improved performance measures, reform of payment policies toward a system that rewards both improved quality and lower costs.

My research with colleagues at Dartmouth most relevant, however, to three key payment reform principles that are embedded in the Commission's Pathway Two: (1) Ensuring that incentives to control spending growth apply to all providers, whether through expenditure targets or other means; (2) Striving to reduce regional disparities in spending by applying greater pressure on currently high-spending regions; (3) Fostering the development of Accountable Care Organizations.

In the remainder of my testimony, I will briefly summarize the key findings of our research on variations in Medicare spending, what we have learned about the likely causes of these differences, and then discuss why a focus on fostering organizational accountability should be a key part of any payment reform strategy.

### **Variations in Medicare Spending**

Over thirty years ago, John Wennberg published his seminal article documenting the remarkable variations in practice and spending across small areas of Vermont.<sup>1</sup> With core support from the Robert Wood Johnson Foundation, and more recently from the National Institutes of Aging, we applied these methods to the Medicare population and found variations of a similar magnitude (Figure 1).<sup>2</sup> Per-capita spending on Medicare beneficiaries residing in regions such as Miami, Los Angeles and Manhattan is more than 60% greater than for those residing in Minneapolis, Sacramento, or Rochester, NY. We have now repeated these studies focusing on the chronically ill populations served by hospitals and their medical staffs.<sup>3,4</sup> Even among the top 15 "Honor Roll" academic medical centers (based upon US News and World Reports rankings), we find two fold

differences in per-beneficiary spending on severely ill patients. (Figure 2). Most of the variation in spending across these institutions is due to differences in the volume (or intensity) of services, not to differences in price.

Two critical questions are raised by these studies. What are the benefits, if any, of higher spending across US regions and hospitals? And, what are the causes of the differences we observe?

### **What are the benefits of higher spending?**

Over the past ten years, we have completed a series of studies examining the implications of these differences in spending for the quality and outcomes of care received by Medicare beneficiaries (Figure 3). Overall, the technical quality of care, such as whether patients receive appropriate initial treatment for their heart attacks or timely preventive services, is somewhat worse in higher spending regions and hospitals.<sup>2,5</sup> Those in higher spending regions don't receive more elective surgery.<sup>2</sup> Rather, the differences in spending are almost entirely due to differences in what we call "supply-sensitive services": the frequency of visits to physicians, how much time similar patients spending in the hospital, and differences in other discretionary services such as imaging, diagnostic tests and minor procedures.<sup>2,6</sup>

Beneficiary satisfaction with care was no better in high spending regions and their perceptions of the accessibility of care were somewhat worse in high spending regions.<sup>7</sup> In terms of health outcomes, we found that mortality rates in higher spending regions and hospitals were either no better or slightly worse than in lower spending delivery systems.<sup>7</sup> Perhaps most worrisome was our finding that spending growth was greatest in higher spending regions (on average) and that in regions where spending growth was greatest, survival following heart attacks improved more slowly over recent years than in regions where spending growth was slowest.<sup>8</sup>

Studies comparing physicians' perceptions of their ability to provide high quality care present a similar picture. Physicians in higher spending regions are more likely to report that the continuity of their relationships with patients and their communication with other physicians is inadequate to support high quality care. On average, physicians in higher spending regions are more likely to report difficulty providing high quality care.<sup>9</sup>

These findings point to a troubling paradox: within the context of the U.S. health care delivery system higher spending is associated with lower quality of care and, on average, slightly worse outcomes.

### **What are the causes of higher spending?**

Our more recent work has focused on trying to disentangle the underlying causes of the differences in spending and spending growth across regions. At this stage it is important to distinguish what we know, based on completed research, from what we think we know, our current best theory of what explains the findings.

#### *The evidence*

Patients' preferences for care vary slightly across regions, but not enough to explain the magnitude of spending differences we see. (For example, Medicare beneficiaries in high spending regions are no more likely to prefer aggressive end-of-life care than those in low spending regions<sup>10, 11</sup>). And differences in the malpractice environment explain only about 10% of state level differences in spending.<sup>12</sup> On the other hand, the local capacity of the health care delivery system varies dramatically across regions of differing spending levels. (Figure 4) High spending regions have 32% more hospital beds per-capita, 65% more medical specialists, and 75% more general internists (data not shown).<sup>2</sup> Moreover, it is well known that the current payment system tends to reward high margin services (such as invasive cardiovascular procedures) and ensures that any new capacity will remain fully utilized. (Lower two panels of Figure 4). Elyria, Ohio, for example, has for many years had the highest rates of angioplasty in the United States. A New York Times article described how the high financial rewards for performing this procedure led to the rapid growth of the cardiology group in Elyria.<sup>13</sup>

More recently, we have found that physicians' clinical judgment also varies across regions of differing spending levels.(Figure 5) In a study using clinical vignettes, primary care physicians in higher spending regions were much more likely to recommend discretionary treatments (such as more frequent visits or imaging) than those in low spending regions.<sup>14</sup> Where clinical evidence is stronger (as in referral to a cardiologist for chest pain and a markedly abnormal stress test), we found no association between physicians' decisions and local spending levels.

*The theory: capacity, payment and clinical judgment in the “gray” areas*

These findings suggest a likely explanation for the dramatic differences in spending across regions and the paradoxical finding that higher spending seems to lead to worse quality and worse outcomes (Figure 6). Current clinical evidence and principles of professionalism are an important, but limited, influence on clinical decision-making. Most physicians practice within a local organizational context and policy environment that profoundly influences their decision-making, especially in discretionary settings. Hospitals and physicians each face incentives that will in general reward expansion of capacity (especially for highly reimbursed services) and recruitment of additional procedure-oriented specialists. When there are more physicians, relative to the size of the population they serve, physicians will see their patients more frequently. When there are more specialists or hospital beds available, primary care physicians and other specialists will learn to rely upon those specialists and use those beds. (It is more efficient from the primary care physician's perspective to refer a difficult problem to a specialist or admit them to the hospital than to try to manage them themselves in the context of an office visit for which payments have become relatively constrained).

The consequence is that what appear to be reasonable individual clinical and policy decisions (given the current payment system) lead in aggregate to higher utilization rates, greater costs and, inadvertently, worse quality and worse outcomes. The key element of this theory is that because so many clinical decisions are in the “gray areas” (how often to see a patient, when to refer to a specialist, when to admit to the hospital), any expansion of capacity will result in a subtle shift in clinical judgment toward greater intensity.

Harm could occur through several mechanisms.<sup>15</sup> Greater use of diagnostic tests could find more abnormalities that would never have caused the patient any problem (a condition referred to as “pseudodisease”). Because most treatments have some risks, providing those treatments to patients who don’t need them could cause harm. And as care becomes more complex and more physicians are involved, it will be less and less clear who is responsible for each aspect of a patients’ care. Miscommunication -- and errors -- become more likely.

### **Implications: accountable care, performance measurement and payment reform**

Although there are a broad array of policy levers that could be brought to bear (see Figure 7 and the excellent discussion in Chapter 3 of the Commission’s report), this causal model suggests that reform efforts should include a focus on fostering local organizational accountability for quality and total-per beneficiary costs (through comprehensive performance measurement) and eventual payment reform. The model also suggests that a critical element of any successful strategy will be to control the future growth of capacity -- whether within a local integrated delivery system or at the state or national levels.<sup>1</sup>

There are a number of current organizations that could serve as “Accountable Care Organizations” (Figure 8) -- local delivery systems that are large enough to support comprehensive performance measurement, can provide or effectively manage the continuum of care as a real or virtually integrated delivery system, and are capable of prospective budgeting and planning their resource and workforce needs. These include large multi-specialty group practices that own their own hospitals, physician-hospital organizations or other large integrated physician practice networks, hospitals that own their own physician groups, and, perhaps, the Extended Hospital Medical Staff (EHMS).<sup>17</sup>

The EHMS is an empirically defined (i.e. “virtual”) multi-specialty group practice directly or indirectly affiliated with a single hospital. Our analyses of Medicare claims data found the following.<sup>17</sup>

- Almost all physicians can be empirically assigned to a single hospital, based upon where they provide inpatient care or where their patients are admitted.
- Medicare beneficiaries cared for by these physicians tend to receive most of their care from within the group, from their affiliated hospital, or from a single other hospital and its physicians (often an obvious referral hospital).

Although there are a number of barriers to the universal implementation of ACOs through either the EHMS or other models<sup>18</sup>, the advantages of a payment reform strategy that included fostering ACOs include at least the following (Figure 9).

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<sup>1</sup> The evidence reviewed above is also relevant to debates about the physician workforce. If low-spending regions can achieve equal or better outcomes and quality than high spending regions, we may be able to meet future workforce needs without growing the workforce further.<sup>16</sup> Goodman DC. The physician workforce crisis: where is the evidence? Health Aff (Millwood) 2005;Suppl Web Exclusives:W5-108-W5-10.

*(1) Most physicians already practice within relatively coherent real or virtual ACOs.*

Because most physicians already practice within informal practice networks that are more or less tightly affiliated with one or more hospitals (as discussed above), modest incentives and removal of current legal barriers could encourage them to establish formal relationships for the purpose of performance measurement, pay-for-performance rewards, shared savings or other gainsharing arrangements that would require little disruption of their current referral patterns.

*(2) Effective performance measurement would be more tractable.* Current performance measurement efforts focused on individual physicians confront numerous difficulties, including the narrow scope of quality measures available, potential limitations of episode groupers as measures of costs, the difficulty of attributing care to a single physician, the lack of performance measures for many specialties, and the relatively small number of patients that may be specifically attributable to any single physician. An even more important concern is the broader scope of measures that become possible at the level of an ACO. The Institute of Medicine's recent reports on performance measurement and pay-for-performance both call for the development of measures that focus on the longitudinal experience of Medicare beneficiaries (including measures of total costs and health outcomes), as well as measures that directly address the current fragmentation of patient care. Measuring at the ACO level increases the number of physicians whose care can be assessed (at some level) and the number of patients who contribute to measures (Figure 9) as well as the breadth of measures that are feasible. Figure 10 provides several examples based upon existing Medicare claims-based measures. But with appropriate risk adjustment, measures of health outcomes (such as surgical mortality rates or outcomes following acute myocardial infarction) would also be possible.<sup>19</sup> Finally, there are important practical advantages: the administrative complexity of data collection methods and auditing procedures for 5000 hospitals would be much less daunting than those required to collect and audit data on the more than 500,000 individual physicians practicing in the United States.

*(3) Measures and incentives could encompass total Medicare program payments.* A focus on Accountable Care Organizations could (as Figure 11 demonstrates) include a broader array of spending measures beyond physician services. This particular example includes utilization by Medicare beneficiaries cared for within EHMS-defined ACOs. Measures include not only spending on physician services, but also hospital spending and SNF utilization. Work is currently underway by the Dartmouth Atlas project to add the remaining categories (long-stay hospitals, outpatient services, home health and hospice) so that these may be presented at the ACO (hospital or EHMS) levels. An advantage of focusing expenditure targets on total program payments is that the real problem confronting Congress is Medicare spending growth (not just physician spending) and that including all Medicare providers under a revised expenditure target would allow Congress to achieve a given budgetary savings with lower relative reductions in any specific providers' incomes.

*(4) ACOs would have the capacity to invest in system improvement and are the right level for efforts to control costs.* Evidence is growing that health plans and hospitals have responded to current public reporting and pay-for-performance initiatives. Large-



multispecialty medical groups have also been found to be more likely to invest in electronic health records and care management systems.

The most important reason, however, to focus on ACOs is to establish accountability for local decisions about capacity and thus costs. As was discussed above, local decisions that influence capacity -- capital investments, recruitment, and individual physicians' choices about practice location -- are likely to be the first step in the causal chain leading physicians to adopt more intensive practice patterns, and to the overuse of supply-sensitive services. Figure 12 shows how ACOs defined using the Extended Hospital Medical Staff method differed in terms of growth in per-beneficiary spending between 1999 and 2003. The lowest spending two fifths of these ACOs grew at less than 5% per year, while the highest growth groups had annual increases in per-beneficiary spending on physician services of almost 10 percent. Although further analyses are under way to explore the causes of these differences, it is likely that the more rapid increases are a function not only of increased volume per physician, but also of increases in the numbers of physicians providing services or the addition of new diagnostic, imaging or inpatient services. Comprehensive measures of longitudinal quality and costs at the ACO level would bring the impact of such decisions to light.

### **Challenges facing the development of ACOs**

While the potential advantages of fostering the development of ACOs are substantial, serious barriers to moving in this direction must be acknowledged.

*The current market.* Under a payment system that now largely focuses on controlling the prices of individual services, but continues to disproportionately reward high technology procedures and those providers who own their facilities or increase their volume of services, physician entrepreneurial activity has increased dramatically. The consequence has been an increase in direct competition between physicians and hospitals. Reversing these trends may be difficult.

*Cultural barriers.* Physician practice and professional identity in the United States has long been characterized by a high degree of professional autonomy and a culture of individual responsibility -- both of which are reinforced by current medical training, professional malpractice liability programs and payment systems. Although there are numerous examples of physicians deeply engaged in collaborating with hospital administrators and nurses to improve the delivery of care, these remain relatively isolated examples. The notion of accepting a degree of responsibility for the care of all of the patients within their local delivery system will be resisted by many physicians.

*Legal obstacles.* Legal obstacles to physician-hospital collaboration are substantial, especially with regard to sharing the potential financial gains of more efficient care.<sup>1</sup>

*Variability in the degree of alignment.* Our data reveal substantial variability across hospitals in the degree to which physicians and patients are already aligned with a single hospital and a relatively coherent medical staff.

## Moving forward

It is exactly these practical barriers, however, that make pursuing the notion of the Accountable Care Organizations worthy of further discussion and cautious efforts to test the ideas more fully. The alternative -- a narrow focus on provider performance assessment and pay-for-performance incentives aimed at individual physicians and institutional providers -- will require overcoming many of the same political and practical challenges. But it would also risk reinforcing the fragmentation and lack of coordination that characterizes the current delivery system. And any effort that fails to foster accountability for future capacity growth will be unlikely to rein in the growth of Medicare spending.

The remarkable differences in spending growth observed across existing empirically defined multi-specialty groups reveals that some are already growing at a rate that would not imperil the future health of the Medicare Trust Funds. Payment reform should include efforts to provide support and incentives that would allow all Medicare beneficiaries to receive care from local integrated delivery systems that achieve both high quality and a truly sustainable rate of growth.

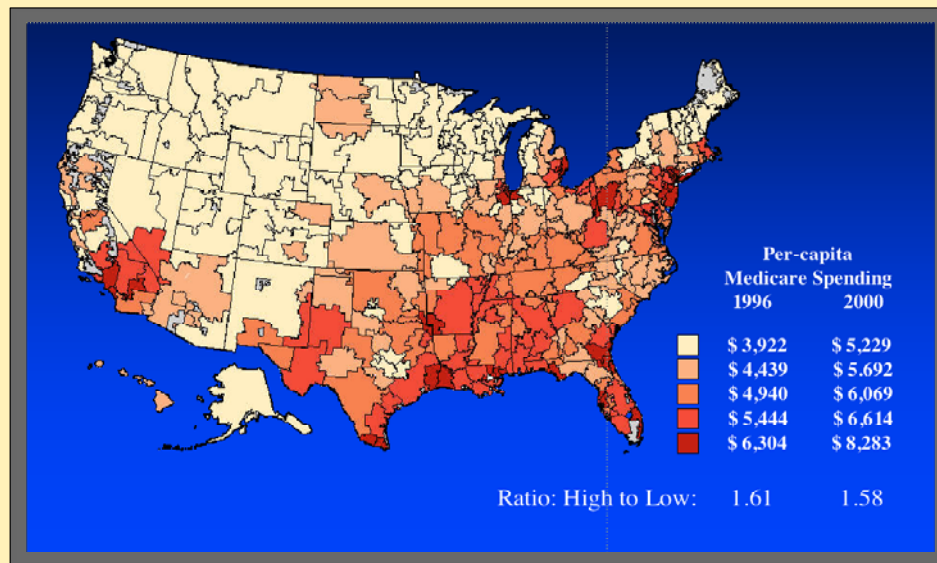
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## Figure 1. Variations in spending across regions

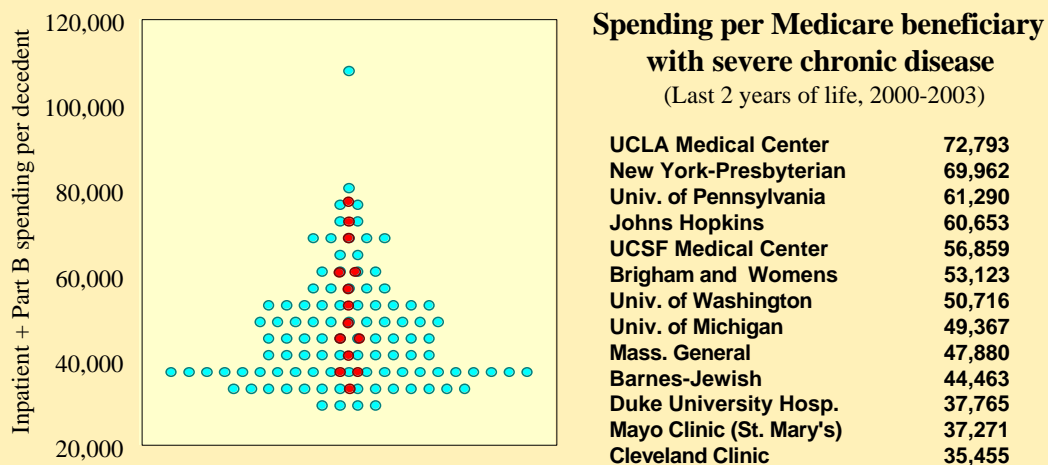
Variations in per-capita spending across U.S. regions. Each color grouping includes approximately one fifth of the Medicare population.



Fisher et al. Ann Intern Med: 2003; 138: 273-298

## Figure 2. Variations in spending across medical centers

Variations in spending for patients with severe chronic disease across U.S. News and World Reports top 15 “Honor Roll” academic Medical Centers.



Most of the differences in spending are due to differences in volume (or intensity), not price. For example, 66% of the variation in spending across academic medical centers can be explained by the number of inpatient days and physician visits alone.

Dartmouth Atlas of Health Care: [www.dartmouthatlas.org](http://www.dartmouthatlas.org)

### Figure 3. What does higher spending “buy”?

Compared to the lowest spending regions, what do residents of higher spending regions get for the additional \$3000 per beneficiary (in 2000)?

Resource levels <sup>1</sup>	<i>More hospital beds per capita (32%)</i> <i>More medical specialists (65%) and internists (75%)</i>
Content / Quality of Care <sup>1,2</sup>	<i>Technical quality worse</i> <i>No more major elective surgery</i>
<i>Supply-sensitive services</i> →	<i>More hospital stays, visits, specialist use, tests, procedures</i>
Health Outcomes <sup>1,2</sup>	<i>Slightly higher mortality</i> <i>No better function</i>
Physician-reported quality <sup>5</sup>	<i>Worse communication among physicians</i> <i>Greater difficulty ensuring continuity of care</i> <i>Greater difficulty providing high quality care</i>
Patient-reported quality <sup>1,3</sup>	<i>Lower satisfaction with hospital care</i> <i>Worse access to primary care</i>
Trends over time <sup>4</sup>	<i>Lower gains in survival (following AMI)</i> <i>Greater growth in per-capita resource use</i>
<i>Supply-sensitive services</i> →	

(1) Ann Intern Med: 2003; 138: 273-298

(2) Health Affairs web exclusives, October 7, 2004

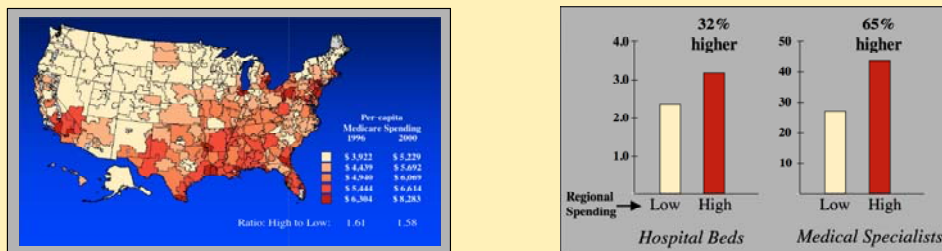
(3) Health Affairs, web exclusives, Nov 16, 2005

(4) Health Affairs web exclusives, Feb 7, 2006

(5) Ann Intern Med: 2006; 144: 641-649

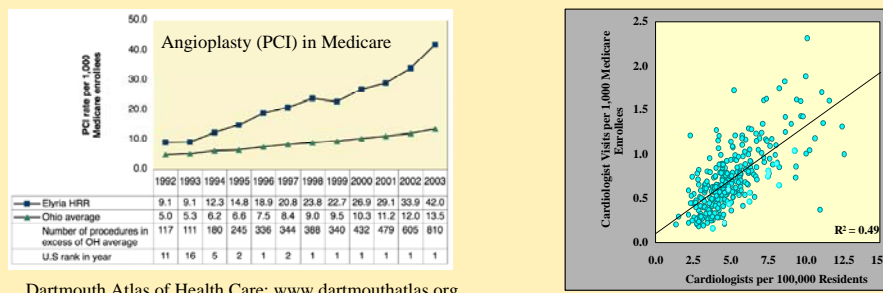
### Figure 4. The role of supply and current payment systems

Compared to the lowest spending regions (tan) the highest spending regions have 32% more beds and 65% more specialists per-capita



Ann Intern Med: 2003; 138: 273-298

Current payment systems reward high margin services (e.g. angioplasty) and ensure that physicians stay busy: more cardiologists per capita --> more visits



## Figure 5. The role of judgment in discretionary settings

*For clinical services where judgment is required and no clear guidelines exist physicians in high spending regions are more likely to intervene.*

Percent of patients for whom physicians would recommend the intervention in low and high spending regions in each scenario:	Low Spending Regions	High Spending Regions	Trend significant
Cardiology referral for chest pain and abnormal stress test	91	93	no
Drug treatment of high cholesterol with no other risk factors	44	53	yes
Urology referral for mild symptoms of prostatic enlargement	23	32	yes
MRI for back pain and mildly abnormal nerve function	69	82	yes
Prostate cancer screening test for 60 year old white male	68	78	yes
Visit for patient with isolated high blood pressure in 3 months or less	22	49	yes

Sirovich *Archives of Internal Medicine*. 165(19):2252-6, 2005 Oct 24  
Sirovich, *Journal of General Internal Medicine*;

## Figure 6. Why is spending higher? Why might harm occur?

Clinical evidence (e.g. RCTs, guidelines) and principles of professionalism are critically important -- but limited -- influence on clinical decision-making.

Physicians practice within a local organizational context and policy environment that profoundly influences their decision-making. Payment system ensures that existing (and new capacity) is fully utilized.

Consequence: *reasonable* individual clinical and local decisions lead, in aggregate, to higher utilization rates, greater costs -- and *inadvertently* -- worse outcomes

*The more complicated care becomes, the more likely mistakes are to occur.*

*Hospitals are dangerous places if you don't need to be there.*

Clinical Evidence  
Professionalism

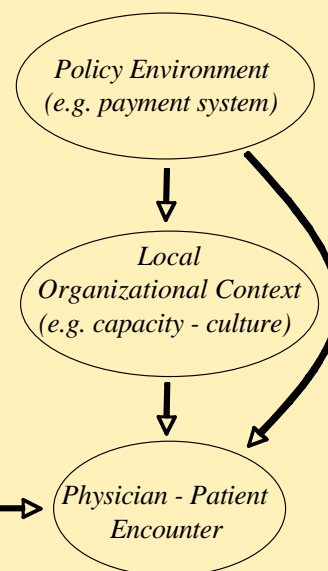


Figure 7. Potential policy levers

Research priorities (biology vs clinical practice)  
Coverage policy  
Performance measurement / Public reporting  
Payment system reform  
Workforce policy (medical schools, GME)

Recruitment / practice location decisions  
Capital investment (hospital, outpatient)  
Organizational structure (hospital, MD group)  
Process management (QI, IT adoption)

Specialty certification  
Graduate Medical Education  
Continuing Medical Education  
HIT for care and decision-support  
Patient / public education and incentives

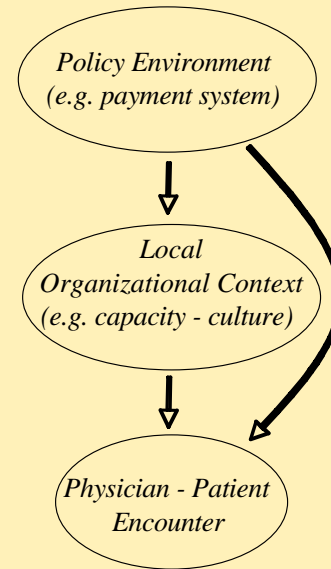


Figure 8. Fostering organizational accountability

**Essential attributes of an Accountable Care Organization**

Sufficient size to support comprehensive performance measurement  
Provides (or can effectively manage) continuum of care as a real or virtually integrated local delivery system  
Capable of prospectively planning budgets, capacity and resource needs

**Potential Accountable Care Organizations**

Large multi-specialty group practices that own their own hospitals  
(Mayo, Virginia Mason, Scott White, Cleveland Clinic, Partners)  
Physician-Hospital Organizations / Practice Networks  
(Middlesex Health System)  
Hospitals that own physician groups  
(Intermountain Healthcare, many rural hospitals)  
Extended Hospital Medical Staff

## Figure 9. Why focus on developing ACO's?

### Most physicians already practice within “virtual” ACOs

Virtually all MDs (95%) and Medicare beneficiaries (93%) can be assigned based on claims data to their local hospital and its medical staff

Most care is already delivered within these virtual multi-specialty groups

Modest incentives might prompt physicians to establish formal organizations that would not have to disrupt their current practices or patient care.

### Performance measurement is more tractable in the near term

All physicians could be included in measurement with adequate sample sizes, less difficulty in attribution (see Figure 9).

Diverse and important measures are feasible (see Figure 10).

### Spending measures can include total Medicare payments

Either SGR or shared savings models to have broader impact

Could achieve comparable budgetary savings with smaller *relative* effect on providers' revenues

### ACOs more likely to have capacity to invest in improvement: electronic health records, care management, etc

Fisher et al. *Creating Accountable Care Organizations: The Extended Hospital Medical Staff*  
Health Affairs; Published online, 12/05/06

## Figure 10. Attributing care to individual physicians

*If one assigns Medicare beneficiaries to the physician they see most often, many physicians will have no patients assigned. Sample sizes are too small to use for many important measures.*

	Assessed as Individual Physicians		Assessed as members of hospital extended staff
	Among MDs with 1+ patient assigned (n = 254,250)	Among all MDs (n = 572,637)	Among all MDs (n = 572,637)
No patients	0	56	0
1 to 24	36	16	0.3
25-99	30	13	0.7
100-499	32	15	1.3
500 and over	1	1	97.7
	100%	100%	100%

Fisher et al. *Creating Accountable Care Organizations: The Extended Hospital Medical Staff*  
Health Affairs; Published online, 12/05/06



## Figure 11. Diverse performance measures possible

Among ACOs defined by extended hospital medical staff method and stratified by physician spending levels in 2003, average performance varies little in technical quality, but substantially in terms of utilization rates, care transitions, and spending (in standardized prices)\*

	<i>Low Spending</i>	<i>Middle</i>	<i>High Spending</i>	<i>Ratio High to Low</i>
<i>Mammography 65-69</i>	47.8	48.6	47.2	<b>0.99</b>
<i>Eye exams, diabetes</i>	39.0	40.5	41.5	<b>1.06</b>
<i>HbA1c, diabetes</i>	54.9	56.5	54.5	<b>0.99</b>
<i>Hospital Discharges§</i>	330	367	390	<b>1.18</b>
<i>SNF stays §</i>	74.3	75.7	81.7	<b>1.10</b>
<i>Care transitions</i>	0.86	0.92	0.97	<b>1.13</b>
<i>Physician services**</i>	\$2,085	\$2,560	\$3,295	<b>1.58</b>
<i>Acute care hospital</i>	\$2,086	\$2,432	\$2,649	<b>1.27</b>

\* Defined using 2003 standardized payments based upon RVUs

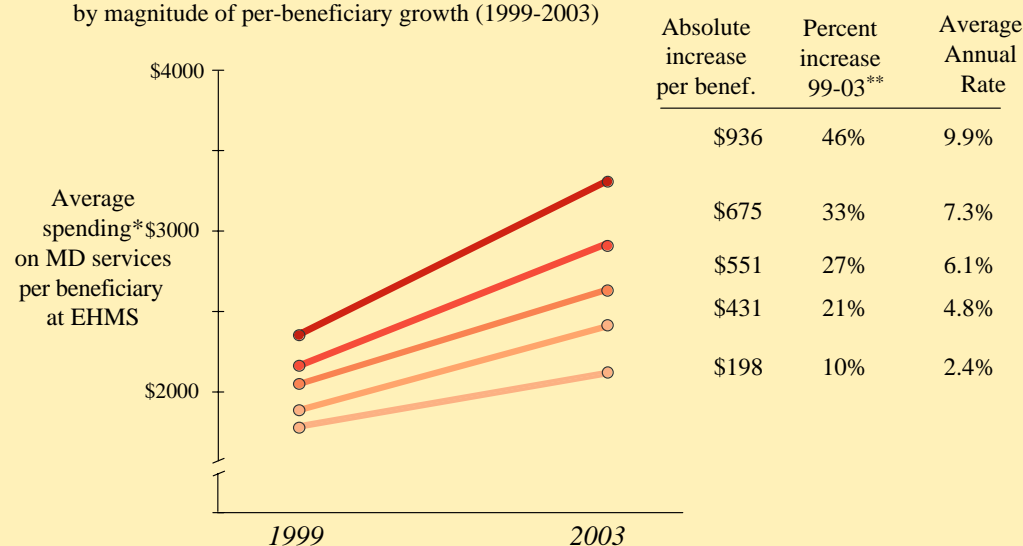
\*\* Physician and hospital spending calculated using standardized national prices (spending and utilization data are age-sex-race adjusted)

§ per 1000 beneficiaries

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## Figure 12. Relative growth in spending varies

Growth in per-beneficiary spending on physician services across ACOs defined by Extended Hospital Medical Staff method (n = 4772) stratified into quintiles by magnitude of per-beneficiary growth (1999-2003)



\* Using standardized payments, using 2003 RVU

\*\* Percent increase calculated relative to average U.S. 1999 per-beneficiary spending in order to assess relative contribution to aggregate growth.

Source: Fisher and Gottlieb, MedPAC analyses, December 2006

